

WHAT IS CLAIMED IS:

1. A method of manufacturing an ND filter having at least two kinds of films on a substrate, comprising the steps of:

5       forming a film of at least one layer having a gradation thickness distribution while rotating a slit mask integrally with the substrate; and  
      forming a film of the outermost layer without using the slit mask on the film of at least one layer  
10   having a gradation thickness distribution.

2. A method according to claim 1, further comprising the step of:

      subjecting the substrate after film formation  
15   to heat treatment in an atmosphere at a temperature of 100°C to 130°C.

3. A method according to claim 1, wherein the step of forming the film of the outermost layer is a  
20   step of forming a film with a constant film thickness.

4. A method according to claim 3, wherein the step of forming the film of the outermost layer is a step of forming a film with an optical film thickness  
25    $n \times d$  ( $n$ : reflectance,  $d$ : mechanical film thickness) of  $\lambda/4$  ( $\lambda$ : wavelength of incident light).

5. A method according to claim 1, wherein the step of forming the film of at least one layer having a gradation thickness distribution comprises the sub-steps of:

5       forming a film of a first layer having a gradation thickness distribution while rotating a first slit mask integrally with the substrate; and  
      forming a film of a second layer to the layer immediately below the outermost layer having a  
10   gradation thickness distribution in an opposite direction from the first layer while rotating a second slit mask shifted from the first slit mask integrally with the substrate.

15       6. A method according to claim 1, wherein the slit mask has a sawtooth shape.

      7. A method according to claim 1, wherein the slit mask is a mask having a dotted pattern.

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      8. A method according to claim 7, wherein the diameter of the dots change stepwise or continuously.

      9. A method according to claim 7, wherein a  
25   distance between centers of dots change stepwise or continuously.

10. A method according to claim 7, wherein the mask having the dotted pattern is used with a distance between the mask and the substrate set to a value in a range of 1 mm to 50 mm.

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11. An ND filter comprising:

a substrate;

a film of at least one layer which is formed on the substrate and has a gradation thickness

10 distribution; and

a film of an outermost layer which is formed on the film having the gradation thickness distribution.

12. An aperture device comprising:

15 a plurality of aperture blades which are relatively driven to change a size of an aperture; and

an ND filter according to claim 10 fixed to the aperture blades.

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13. A camera comprising:

an optical system; and

an aperture device according to claim 10 which restricts an amount of light passing through the

25 optical system.